

ABSTRACT

A novel integrated process for the recovery of sulphate of potash (SOP) from sulphate rich bittern is disclosed. The process requires only bittern and lime as raw materials. Kainite type mixed salt is obtained by fractional crystallization of the bittern. Kainite is converted to schoenite with simultaneous removal of NaCl by processing it with water and end liquor obtained from reaction of schoenite with MOP for its conversion to SOP. The end liquor from kainite to schoenite conversion (SEL) is used for the recovery of MOP. SEL is desulphated and supplemented with $MgCl_2$ using end bittern generated in the process of making carnallite. The carnallite is decomposed to get crude potash which in turn processed to get MOP. The carnallite decomposed liquor produced in the decomposition of carnallite is reacted with hydrated lime for preparing $CaCl_2$ solution and high purity $Mg(OH)_2$ having low boron content. The $CaCl_2$ solution is used for desulphatation of SEL producing high purity gypsum as a byproduct. It is shown that the liquid streams containing potash are recycled in the process, the recovery of potash in the form of SOP is quantitative.